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EXAMINER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 October 2006*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8,11-19,22-30 and 33-35* is/are pending in the application.

    4a) Of the above claim(s) *9,10,20,21,31 and 32* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,11-19,22-30 and 33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *34-35* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

Detailed Action

1. This office action is for the amendment filed on 10/13/2006.

Restriction

2. Newly submitted claims 34-35 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

In the previous independent claims 1, 12, 23 of this invention, the determination of a antenna selection for a starting antenna based on a majority polling scheme and a weighted sum filtering scheme. However, the newly added independent claim 34 which claims different features from the previously claimed features in the independent claims 1, 12, 23 above.

Claim 34 claims different features from above independent claims 1, 12, 23, by having the determination of a antenna selection for a starting antenna based on a number of times, the antenna has been previously selected over a predetermined number of previously received frames, and

Claim 35 claims different features from above in independent claims 1, 12, 23, by having a processor collects received signal power information of received frames & filtering the collected received power information, and generating a weighted sum filtered signal power for each antenna in said portion of plurality of antennas, for the determining one starting antenna based on said generated weighted sum filtered signal power.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 34-35 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Objections

3. Claims 11, 22, 23 are objected to under 37 CFR 1.75(c), as being of improper dependent

form for failing to further limit the subject matter of a previous claim. Applicant is required to

cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or

rewrite the claim(s) in independent form.

Claims 11,22, 33 are depending upon the canceled claims. Appropriated correction is

required.

For the examining purpose, it is assuming claim 11 is depending on claim 1, claim 22 is

depending on claim 12 & claim 33 is depending on claim 23.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness
rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as
> set forth in section 102 of this title, if the differences between the subject matter sought to be
> patented and the prior art are such that the subject matter as a whole would have been obvious at
> the time the invention was made to a person having ordinary skill in the art to which said subject
> matter pertains. Patentability shall not be negatived by the manner in which the invention was
> made.

4. Claims 1, 5-6, 12, 16-17, 23, 27-28 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Menich et al. [US 4,704,734] in view of Ishihara et al. [US 2006/0234,776

A1].

For Clam 1, Menich et al. [Menich] teaches a method for controlling an antenna system

[abstract, steps & functions in Fig. 10-19], the method comprising

collecting information associated with at least one of a plurality of samples received by a

portion of a plurality of antennas [the sequentially sampled signal strength in abstract; the

storing of digital representation of the signal strength/rf energy data into storage location for

the measurement on primary sector antenna, & also on its adjacent left, right, sector

antennas, as the portion of a plurality sector antennas, col. 2, line 54 to col. 3, line 12; col.

11, line 31 to col. 12, line 38 , Fig. 17] ; and

determining at least one starting antenna from said plurality of antennas based on said

collected information received by said portion of said plurality of antennas [the recalling of

the stored digital representation, & the strongest signal along with an identification of

receiving antenna, as the starting antenna, are determined in abstract, from a portion of the

plurality sector antennas, primary, left, right antennas, col. 3, lines 1-12],

Menich teaches a cellular radio telephone system [col. 4, lines 10-13], but fails to teach

the collecting information associated with at least one of a plurality of frames received by a

plurality of antennas; the determining at least one starting antenna from said plurality of

antennas based on collected information, using one or both of a majority polling scheme and

a weighted sum filtering scheme.

Ishihara [Ishihara] teaches the collecting information associated with at least one of a

plurality of frames received by a plurality of antennas [the reception level measuring section

107 measures 10 frames, paragraph 0044-0046, from plurality of antennas antenna A, B, C,

Fig. 3, Fig. 5],

the determining at least one starting antenna from said plurality of antennas based on

collected information, using one of a majority polling scheme [the determination of a starting

antenna for receiving of the next frame from the result of comparing the mean value of the

frames, collected information, from antenna in actual-use with the mean value of the frames

from the antenna to be measured, for a predetermined number of times, as the majority

polling from the frames which have greater mean value, paragraph 0047, 0050, 0052; the

averaging the received frames for a number of times, paragraph 0046], to provide reliable

antenna selection based on the averaging of the received frames for a number of times,

Therefore, It would have been obvious to one of ordinary skill in the art at the time the

invention was made to upgrade Menich with Ishihara's averaging of the received frames for a number of times, such that the antenna selection could be reliable.

For Clams 5, 16, 27, Menich teaches receiving, measuring, signal on said portion of a plurality antennas [primary, left, right, sector antennas]. Menich fails to teach the plurality of frames.

Ishihara teaches the collecting at least one of a plurality of selection metrics associated with said at least one of a plurality of frames received by said antennas [the collecting of the reception mean values from received frames, 0044-0046], using the same reason in claim 1 above for combining Ishihara to Menich.

For Clams 6, 17, 28, Menich fails to teach the frames associated with the metrics. Ishihara teaches the wherein said at least one of a plurality of selection metrics is a power estimation [the measuring of the reception level using reception level measuring section 107, paragraph 0044-0045].

For Clam 12, Menich teaches a machine-readable storage having stored thereon, a computer program having at least one code section for controlling an antenna system [the microprocessor MC6809 provides controls according to the stored programmed steps, code section, in RAM & EPROM, the integral microcomputer of the signal strength detector in col. 10, line 63 to col. 11, line 30; & microprocessor 1302 reads & processes the retrieved signal strength information in col. 12, line 12, line 36 & line 54],

the at least one code section being executable by a machine for causing the machine to perform steps [the code section in steps in Fig. 20a to Fig. 21 & code section for the functions performed in Fig. 17] comprising

collecting information associated with at least one of a plurality of samples received by a portion of a plurality of antennas [the sequentially sampled signal strength in abstract; the

storing of the digital representation of the signal strength/rf energy data into storage

locations for the measurement on primary sector antenna & its adjacent left, right, sector

antennas, as the portion of a plurality sector antennas, col. 2, line 54 to col. 3, line 12; col.

11, line 31 to col. 12, line 38 , Fig. 17] ; and

determining at least one starting antenna from said plurality of antennas based on said

collected information received by said portion of said plurality of antennas [the recalling of

the stored digital representation, & the strongest signal along with an identification of

receiving antenna, as the starting antenna, are determined in abstract, from a portion of the

plurality sector antennas, primary, left, right antennas, col. 3, lines 1-12].

Menich teaches a cellular radio telephone system [col. 4, lines 10-13], but fails to teach

the collecting information associated with at least one of a plurality of frames received by a

plurality of antennas; the determining at least one starting antenna from said plurality of

antennas based on collected information, using one or both of a majority polling scheme and

a weighted sum filtering scheme.

Ishihara [Ishihara] teaches the collecting information associated with at least one of a

plurality of frames received by a plurality of antennas [the reception level measuring section

107 measures 10 frames, paragraph 0044-0046, from plurality of antennas antenna A, B, C,

Fig. 3, Fig. 5],

the determining at least one starting antenna from said plurality of antennas based on

collected information, using one of a majority polling scheme [the determination of a starting

antenna for receiving of the next frame from the result of comparing the mean value of the

frames, collected information, from antenna in actual-use with the mean value of the frames

from the antenna to be measured, for a predetermined number of times, as the majority

polling from the frames which have greater mean value, paragraph 0047, 0050, 0052; the

averaging the received frames for a number of times, paragraph 0046], to provide reliable

antenna selection based on the averaging of the received frames for a number of times,

Therefore, It would have been obvious to one of ordinary skill in the art at the time the

invention was made to upgrade Menich with Ishihara's averaging of the received frames for

a number of times, such that the antenna selection could be reliable.

For Clam 23, A system for controlling an antenna system [col. 4, lines 10-13], the

system comprising

a processor [1302, col. 8, lines 46-57; col. 12, line 12, line 36 & line 54] collecting

information associated with at least one of a plurality of samples received by a portion of a

plurality of antennas [the sequentially sampled signal strength in abstract; the storing of

the digital representation of the signal strength/rf energy data into storage locations for the

measurement on primary sector antenna & its adjacent left, right, sector antennas, as the

portion of a plurality sector antennas, col. 2, line 54 to col. 3, line 12; col. 11, line 31 to col.

12, line 38 , Fig. 17] ; and

a processor [1302] determining at least one starting antenna from said plurality of

antennas based on said collected information received by said portion of said plurality of

antennas [the recalling of the stored digital representation, & the strongest signal along with

an identification of receiving antenna, as the starting antenna, are determined in abstract,

from a portion of the plurality sector antennas, primary, left, right antennas, col. 3, lines 1-

12],

Menich teaches a cellular radio telephone system [col. 4, lines 10-13], but fails to teach

the collecting information associated with at least one of a plurality of frames received by a

plurality of antennas; the determining at least one starting antenna from said plurality of

antennas based on collected information, using one or both of a majority polling scheme and a weighted sum filtering scheme.

Ishihara [Ishihara] teaches the collecting information associated with at least one of a plurality of frames received by a plurality of antennas [the reception level measuring section 107 measures 10 frames, paragraph 0044-0046, from plurality of antennas antenna A, B, C, Fig. 3, Fig. 5],

the determining at least one starting antenna from said plurality of antennas based on collected information, using one of a majority polling scheme [the determination of a starting antenna for receiving of the next frame from the result of comparing the mean value of the frames, collected information, from antenna in actual-use with the mean value of the frames from the antenna to be measured, for a predetermined number of times, as the majority polling from the frames which have greater mean value, paragraph 0047, 0050, 0052; the averaging the received frames for a number of times, paragraph 0046], to provide reliable antenna selection based on the averaging of the received frames for a number of times, Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Menich with Ishihara's averaging of the received frames for a number of times, such that the antenna selection could be reliable.

5. Claims 2-3, 13-14, 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Menich in view of Ishihara, as applied to claims 1, 12, 23 above, and further in view of Xu [US 2004/0203,550 A1].

For Clams 2, 13, 24, Menich & Ishihara fail to teach which portion for the wherein said portion of a plurality of antennas are receiving antennas and a remaining portion of said plurality of antennas are transmitting antennas.

Xu teaches these features [the Vant_1 to Vant_M, Vtx, Vrx are the antenna control signals for selecting antenna portion for receiver 204 and remaining antenna portion for transmitter 202, abstract, paragraph 0012], to improve the antennas switching, for sharing antennas to a receiver & a transmitter by the simple, low loss, high isolation, diode switching circuit [0002]. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Menich, Ishihara with Xu's antenna switching, in order to improve antenna switching with the better switches, simple, low loss, high isolation.

For Clams 3, 14, 25, Menich teaches the method comprising selecting said at least one starting antenna from said receiving antennas [the selecting of one receiving, starting, antenna from primary, left, right sector antennas abstract, col. 3, lines 1-12; the code for steps executed by microprocessor 1320, Fig. 20a-21 for measurement process and antenna selection process, col. 4, lines 1-6].

6. Claims 4, 15, 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Menich in view of Ishihara, Xu, as applied to claims 2, 13, 24 above, and further in view of Akerberg [US 6,553,078 B1].

For Clams 4, 15, 26, Menich, Ishihara, Xu fail to teach the selecting said at least one starting antenna from transmitting antennas.

Akerberg teaches the selecting said at least one starting antenna from said transmitting antennas [the selecting a starting antenna from antennas A1, A2 for transmitting next down link burst, in col. 4, lines 51-56; the code section for steps in Fig. 6 & the processor executes program for CU-BS & P-BS in col. 4, lines 12-16], the antenna selection based on the previously stored BER data, threshold, col. 4, lines 27-56], in order to select best antenna based on the stored BER data. Therefore, It would have been obvious to one of ordinary

skill in the art at the time the invention was made to upgrade Menich, Ishihara, Xu with

Akerberg's BER of uplink frames, in order to improve the quality of the uplink frames with

better BER via a selected antenna.

7. Claims 7, 18, 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Menich

in view of Ishihara, as applied to claims 5, 16, 27 above, and further in view of Lyons et al.

[US 2005/0095,987 A1].

   For Clams 7, 18, 29. Menich, Ishihara fail to teach the selecting at least one metric from

plurality of selection metrics.

   Lyons et al. [Lyons] teaches the selecting at least one of said at least one of a plurality of

selection metrics to determine said at least one starting antenna [the antenna selection

based on the signal power Rssi or based on the relative error vector magnitude EVM

associated with error distance in paragraph 0116-0117, abstract, Fig. 1; the processor 735

executes program stored in memory 737, paragraph 0040-0041, the executed instruction &

program code in paragraph 0140-0141], in order to select one antenna based on different

metrics to improve the signal quality. Therefore, It would have been obvious to one of

ordinary skill in the art at the time the invention was made to upgrade Menich, Ishihara with

Lyons' Rssi, EVM, in order to improve the quality with rssi or EVM.

8. Claims 8, 19, 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Menich

in view of Ishihara, as applied to claims 1, 12, 23 above, and further in view of Rozanski [US

5,530,926].

   For Clams 8, 19, 30, Menich, Ishihara fail to teach the features for this claim.

Rozanski teaches the selecting at least one of said at least one of a plurality of frames to determine said at least one starting antenna [the code steps 63-65, the measuring first, second half of slot N-1, col. 4, lines 16-37 & in a frame in col. 4, lines 63-67, for accurately determine the signal power level, for next starting antenna selection], in order to accurately controlling the starting antenna selection by measuring the power in two halves of a slot. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Menich, Ishihara with Rozanski's two half power of a slot in a frame for the determining of the antenna selection, in order to accurately control the antenna selection based on the measured power for two halves of a time slot of a frame.

9. Claims 11, 22, 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Menich in view of Ishihara, as applied to claims 1, 12, 23 above, and further in view of Banister [US 6,456,647 B1].

For Clams 11, 22, 33, Menich, Ishihara fail to teach the features for this claim. Banister teaches the wherein said weighted sum scheme corresponds to the response of a first-order Infinite Impulse Response IIR filter or to the response of a Finite Impulse Response FIR filter [the antenna selection is based on the weight factor derived from simple, single tap, first order, IIR filter or the response of FIR, col. 7, lines 14-23 & col. 13, lines 24-34; it is well known that IIR filter or FIR filter is implemented in software code], in order to correctly decode a symbol [abstract]. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Menich, Ishihara with Banister's IIR, FIR filter, such that the symbol could be correctly decoded.

Response to Argument

10. Applicant's arguments with respect to claims 1-8, 11-19, 22-30, 33 have been considered

but are moot in view of the new ground(s) of rejection.

Regarding applicant amendment is based on the argument of no teaching of the antenna

selection is based on the majority polling scheme [pages 14-17 of applicant amendment

10/13/2006],

Ishihara et al. [US 2006/0234,776 A1] teaches the antenna selection, for the next

starting antenna, based on the majority polling scheme of the collecting information

associated with the plurality of received frames

[the determination of a starting antenna for receiving of the next frame from the result of

comparing the mean value of the frames, collected information, from antenna in actual-use

with the mean value of the frames from the antenna to be measured, for a predetermined

number of times, as the majority polling from the frames which have greater mean value,

paragraph 0047, 0050, 0052; the averaging the received frames for a number of times,

paragraph 0046].

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office

action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is

reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened

statutory period for reply to this final action is set to expire THREE MONTHS from the

mailing date of this action. In the event a first reply is filed within TWO MONTHS of the

mailing date of this final action and the advisory action is not mailed until after the end of the

THREE-MONTH shortened statutory period, then the shortened statutory period will expire

on the date the advisory action is mailed, and any extension fee pursuant to 37

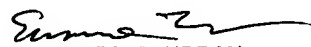CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of

this final action.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner

should be directed to Charles Chow whose telephone number is (571) 272-7889. The

examiner can normally be reached on 8:00am-5:30pm. If attempts to reach the examiner by

telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on

(571) 272-7899. The fax phone number for the organization where this application or

proceeding is assigned is (571) 273-8300. Information regarding the status of an application

may be obtained from the Patent Application Information Retrieval (PAIR) system. Status

information for published applications may be obtained from either Private PAIR or Public

PAIR. Status information for unpublished applications is available through Private PAIR

only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic Business

Center (EBC) at 866-217-9197 (toll-free).

Charles   Chow Ċ.Ċ.

May 4, 2007.

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